P/627401 (handwritten)

Refine Search

Search Results -

Terms	Documents
L9 and (select$ with criteri$) and ((edit$ or chang$ or modif$) with criteri$) and (print$ with (service or job$)) and interact$ and pric$	1

Database:

US Pre-Grant Publication Full-Text Database
US Patents Full-Text Database
US OCR Full-Text Database
EPO Abstracts Database
JPO Abstracts Database
Derwent World Patents Index
IBM Technical Disclosure Bulletins

Search:

L10

[Refine Search]

[Recall Text ⬍] [Clear] [Interrupt]

Search History

DATE: Thursday, June 02, 2005   Printable Copy   Create Case

Set Name Query side by side		Hit Count	Set Name result set
DB=USPT; THES=ASSIGNEE; PLUR=YES; OP=OR			
L10	l9 and (select$ with criteri$) and ((edit$ or chang$ or modif$) with criteri$) and (print$ with (service or job$)) and interact$ and pric$	1	L10
L9	(Re32115 | 5383129 | 3581072 | 5903728 | 5606365 | 5748194 | 6064838 | 5550746 | 5359387 | 6198526 | 5787466 | 5327526 | 6157435 | 5835735 | 5913088 | 4839829 | 5790708 | 5760917 | 5243515 | 5806005 | 6373551 | 5918213 | 5995196 | 5974401 | 5720036 | 5907640 | 5715034 | 5930810 | 6381418 | 6018338 | 5280425 | 5760916 | 4567359 | 5159385 | 5264683 | 6012066 | 5477353 | 5933646 | 5890213 | 5179637 | 5960411 | 6169596 | 5825467 | 5287194 | 5394324 | 5768142 | 5826244 | 5960164 | 5339168 | 5751950 | 4799156 | 5327265 | 5809280 | 6017157 | 5726898 | 5249120 | 5241464 | 5799219 | 5787459 | 6012890 | 5926288 | 5132915 | 5255207 | 6181409 | 5696850 | 4495582 | 5778430 | 5897260)![PN]	68	L9
L8	('6657702'| '6330542'| '5974401'| '5826244'| '6324521')[PN]	5	L8
L7	L1 or l6	5	L7

(handwritten left margin: BCK. Ref. + RFA / backward. Ref.)

Fwd. +
RFA

Fwd. Ref

L6	L4 and (select$ with criteri$)	1	L6
L5	L4 and (select$ criteri$)	1	L5
L4	L3 and ((edit$ or chang$ or modif$) with criteri$)	1	L4
L3	l2 and (print$ with (service or job$)) and interact$ and pric$ and criteri$	6	L3
L2	('6657702'| '5974401'| '5826244'| '6324521')[URPN]	108	L2
L1	5826244.pn. or 6324521.pn. or 5974401.pn. or 6657702.pn.	4	L1

END OF SEARCH HISTORY

Bwd. Ref. Hit. = 1

No teaching about
diff. printing provider
for selection

☐   Generate Collection   Print

L10: Entry 1 of 1   File: USPT   Feb 15, 1994

US-PAT-NO: 5287194
DOCUMENT-IDENTIFIER: US 5287194 A

TITLE: Distributed printing

DATE-ISSUED: February 15, 1994

INVENTOR-INFORMATION:
NAME   CITY   STATE   ZIP CODE   COUNTRY
Lobiondo; Martin F.   Penfield   NY

ASSIGNEE-INFORMATION:
NAME   CITY   STATE   ZIP CODE   COUNTRY   TYPE CODE
Xerox Corporation   Stamford   CT   02

APPL-NO: 07/ 981717   [PALM]
DATE FILED: November 25, 1992

INT-CL: [05] H04N 1/23, G03G 15/00

US-CL-ISSUED: 358/296; 355/202, 395/114
US-CL-CURRENT: 358/296; 358/1.15, 399/1

FIELD-OF-SEARCH: 355/200, 355/202, 355/204, 395/114, 358/296

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

    Search Selected   Search ALL   Clear

	PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
☐	3597071	July 1971	Jones	355/202
☐	4476486	October 1984	Ayata et al.	358/78
☐	4521805	June 1985	Ayata et al.	358/75
☐	4527885	July 1985	Ayata et al.	346/140R
☐	4587532	May 1986	Asano	346/134
☐	4797706	January 1989	Sugishima et al.	355/200 X
☐	4839829	June 1989	Freedman	395/155
☐	4947345	August 1990	Paradise et al.	358/442

☐	4982234	January 1991	Filion et al.	355/209
☐	5036361	July 1991	Filion et al.	355/209
☐	5045880	September 1991	Evanitsky et al.	355/200
☐	5053970	October 1992	Kurihara et al.	364/468
☐	5111391	May 1992	Fields et al.	364/401
☐	5123089	June 1992	Beilinski et al.	395/200
☐	5128860	July 1992	Chapman	364/401
☐	5128878	July 1992	Gore et al.	395/162
☐	5130806	July 1992	Reed et al.	358/296
☐	5179637	January 1993	Nardozzi	395/114

OTHER PUBLICATIONS

Xerox Disclosure Journal, P. F. Morgan, vol. 16, No. 6, Nov./Dec. 1991, pp. 381-383, "Integration of Black Only and Color Printers".

ART-UNIT: 215

PRIMARY-EXAMINER: Pendegrass; Joan H.

ATTY-AGENT-FIRM: Oliff & Berridge

ABSTRACT:

A printshop management scheduling routine and system which provide optimum scheduling of printer jobs on a network. The scheduling routine utilizes the total complex of printers available at local location and/or remote locations to allocate and complete printer jobs based on a plurality of criteria, including requested completion time for the project. If requested completion time does not allow printing of the print job by a sole printer, the print job is allocated to a plurality of available printers, each printing a portion of the complete print job.

6 Claims, 4 Drawing figures

☐ ▨▨▨▨ Generate Collection ▨▨▨▨   Print

L10: Entry 1 of 1   File: USPT   Feb 15, 1994

DOCUMENT-IDENTIFIER: US 5287194 A
TITLE: Distributed printing

Abstract Text (1):
A printshop management scheduling routine and system which provide optimum
scheduling of printer jobs on a network. The scheduling routine utilizes the total
complex of printers available at local location and/or remote locations to allocate
and complete printer jobs based on a plurality of criteria, including requested
completion time for the project. If requested completion time does not allow
printing of the print job by a sole printer, the print job is allocated to a
plurality of available printers, each printing a portion of the complete print job.

Brief Summary Text (3):
The present invention relates to a printshop management scheduling routine which
provides optimum scheduling of printer jobs on a network. The scheduling routine
utilizes the total complex of printers available at local areas and/or remote
locations to allocate and complete printer jobs based on a plurality of criteria.

Brief Summary Text (5):
U.S. Pat. No. 4,839,829 to Freedman discloses an automated printing control system
for printing of a work. The system comprises a first terminal adapted for use by a
requester to request work to be printed and to receive information concerning
parameters for the printing of the work. A second terminal is adapted for use by a
printing facility for receiving information concerning the printing of the work. A
computer is in communication with the first and second terminals and interacts with
both concerning pricing and administration. Parameters such as what type of work is
to be printed, format, size, quantity, etc. are input through the first terminal.
All of the parameters are used by the computer to develop cost information using
pricing strategies based on available printing equipment or facilities. The
requester then receives information regarding the pricing, timing, etc. and is
given the opportunity to select a particular printing facility to complete the job.
Once the facility is selected, the computer authorizes proceeding with printing of
the job.

Brief Summary Text (7):
U.S. Pat. Nos. 4,476,486, 4,521,805 and 4,527,885, all to Ayata et al., disclose an
image recording system which utilizes a plurality of recording units within a
recording apparatus. If more than one copy is requested, the copy job is divided
among the available recording units to provide parallel printing. According to
another aspect, each recording unit can be of a different type, i.e., a high speed
black and white copier and a color copier.

Brief Summary Text (8):
U.S. Pat. No. 4,587,532 to Asano discloses a recording apparatus having a plurality
of recording units. If more than one copy is requested, the copy job is divided
among the available recording units to provide parallel printing.

Brief Summary Text (10):
Xerox Disclosure Journal, Vol. 16, No. 6, November 1991, Pgs. 381-383, discloses
integration of a slower color printer with a higher speed black only printer to
output collated job sets of black only copy sheets with color inserts at a rate at
or near the full normal high speed copying rate of the high speed black only
printer.

Brief Summary Text (12):
U.S. Pat. No. 4,947,345 to Paradise et al. discloses a queue management system for
a multi-function copier, printer and facsimile machine. Queue management between
copying, printing and facsimile jobs is accomplished on a strict FIFO order or a
modified FIFO order in which facsimile jobs are deferred.

Brief Summary Text (13):
U.S. Pat. No. 5,130,806 to Reed et al. discloses an electronic reprographic
printing system that allows sending of messages with print jobs from remote user
workstations to a central machine. The messages can be displayed on a User
Interface.

Brief Summary Text (15):
It is an object of the present invention to provide a printshop scheduler routine
which automatically schedules jobs at local or remote locations.

Brief Summary Text (16):
It is another object of the present invention to provide a printshop scheduler
routine which can schedule and distribute a large job among a plurality of local
and remote printers attached to a network.

Brief Summary Text (17):
It is another object of the present invention to provide a scheduling method which
allows a user to enter all criteria relating to job requirements including
completion time for the job, the scheduling method automatically scheduling the job
to one or a plurality of printers based on availability and capability of the
printers located on the network and the criteria associated with the print job.

Brief Summary Text (18):
It is another object of the present invention to provide a user at any local area
within the network to control printing of a job at a plurality of user determined
locations, the system providing communication with the user to confirm that each
location can complete the desired job and the time at which the job will be
completed.

Brief Summary Text (19):
The above and other objects are achieved by a printshop management scheduling
routine and system which provide optimum scheduling of printer jobs on a network.
The scheduling routine utilizes the total complex of printers available at local
location and/or remote locations to allocate and complete printer jobs based on a
plurality of criteria, including completion time for the project. The scheduler
also determines or can have input the ultimate locations of the printing of the
job.

Brief Summary Text (20):
According to a preferred embodiment, the scheduler allows a user to enter a
plurality of criteria relating to job requirements including a required completion
time for the job. The scheduler automatically optimally schedules the job to one or
a plurality of printers based on availability and capability of the printers
located on the network. If all printers are currently printing, but the time
constraint is not pressing, the job can be scheduled to the next available printer
on the network. If the network has available printers, but a single printer is
incapable of completing the job by a required time, the scheduler can allocate

portions of the job to a plurality of printers which can print the job in parallel to speed up the completion time to meet the requested time constraints. This may include allocating or dividing the job between a plurality of printers at locations remote from one another. The user is then informed where the job is being printed and when completion is expected.

Detailed Description Text (2):
The present invention relates to a printshop scheduler routine which automatically schedules jobs at local or remote locations. As shown in FIG. 1, the scheduler routine can be used in conjunction with a network comprising a plurality of printers 10, such as the electronic reprographic machine shown in FIG. 2, which are interconnected through a communication link 20, such as, for example the Xerox Ethernet system. The network can be a LAN and may comprise one or more modems 25 which interconnect the printers 10 across communication channels of communication link 20, such as a telephone line. A plurality of workstations 30 are present at various locations within the network from which inputs for jobs to be printed can be entered. The workstations 30 can be a PC computer system, a dumb terminal, or an I/O device on one of the printers 10 such as the User Interface 40 shown in FIG. 2. Information relating to jobs to be printed can be input at the workstation 30 through appropriate input means, such as a keyboard or pull down menus on a touchscreen, into the network.

Detailed Description Text (3):
The information, which contains criteria for printing the job, can be sent to and temporarily stored in a buffer, RAM or other storage means located within a print server 60 or associated with the network and accessible by the print server 60. A printshop scheduler 50, which may be in hardware or software, is located within the network either at the print server 60 or at various local workstations 30 within the network for analyzing the information relating to the job, the print job data itself and known information about the current capabilities of all printing resources within the network and scheduling the printing of print jobs at one or more of the printers 10 to obtain an efficient use of all available resources.

Detailed Description Text (4):
According to an important aspect of the present invention, the entered information can include information relating to the time when the work is desired to be completed, as well as other criteria such as type of document, sizing criteria, formatting, margins, where copies are to be sent, etc. A user at one of the workstations 30 of the network enters a request to print a job, sends the print job data to a network print spooler 60, and enters all necessary criteria which is stored in an input data file in memory. Depending on the type of data to be printed, i.e., facsimile, E-mail transfer, copy, etc., the criteria that needs to be entered for each job can vary.

Detailed Description Text (5):
The scheduler 50 also is responsive to the capability and availability of each printer 10 on the network. A database can include one or more files having information relating to the print job and the resources on the network. The database can include a printer file which can be located in memory containing information relating to each printer, such as printer type, quality, speed, document size, capability, etc. This information is the basic information which does not usually change, but can be changed if the machine is upgraded or certain capabilities are permanently or temporarily unavailable. This information can be centrally stored or may be contained within each printer on the network. Additional files can be located in the database in memory which contain the current availability of all printers on the network (printer availability file) and a file which stores a map of all scheduled jobs and which printers are allocated for each job (schedule map file). Additional files containing various information can be employed.

Detailed Description Text (6):
The printshop scheduler 50 can schedule and distribute a large job, which may
require the use of multiple printers 10 for a single job, among a plurality of
local and remote printers 10 attached to the network. Standard processing and
scheduling by humans cannot efficiently partition multiple jobs to take full
advantage of the printer systems capacities. When multiple printers are present in
the network, at one or more remote locations, it is extremely difficult for a human
print manager to optimally schedule jobs. Although on a limited basis it may be
possible, it is very time consuming and cannot provide real-time scheduling or even
optimized scheduling when a large number of printers are to be managed.

Detailed Description Text (7):
After analysis of a new job, entered by a user located somewhere on the network,
along with other jobs to be printed, the scheduler 50 can notify the user how the
job was distributed or will be distributed, and when the job is to be completed.

Detailed Description Text (8):
For example, if a user requires 1000 sets of a document package by a certain time,
the user would scan in the document or send the digital representation of the
document into the network in a common printer spooling area. The inputting or
programming of one or more jobs onto a printer or reproduction machine can be seen
in U.S. Pat. Nos. 4,984,234 to Fillion et al. and 5,045,880 to Evanitsky, the
disclosures of which are incorporated herein by reference. Additionally, the user
would enter the time when completion of the job is required (and any other criteria
associated with a print job) into memory within the print spooler 60. The scheduler
50 analyzes the printers 10 on the network and determines which printers 10 on the
network are capable of producing the job, i.e., does the job require color
reproduction, special paper, graphics, etc. Then, printers of the type capable of
producing the job are checked for availability. If the time constraint on a
particular job is short, the scheduler 50 checks for the fastest of these printers
10 to complete the job. If it is determined that a single printer 10 cannot
complete the job by the required completion time, the scheduler 50 can allocate
portions of the job among a plurality of available printers 10. The specific
allocation can vary. For example, if available printers 10 have varying production
speeds, the scheduler may allocate as much of the print job as possible to the
fastest available printer 10, i.e., as much as that particular printer 10 can
produce within the requested completion time. Any remaining portion of the print
job can be allocated between one or more slower printers 10. Optionally, the print
job may be allocated into equal portions among a plurality of available machines.
Further, if a very urgent, important job is input into the system which has to be
completed as soon as possible, irregardless of available printer resources, all
available resources may be allocated to the job and any resources which become
available during printing of the job may be assigned any portions of the job which
have not yet been completed. This would fully utilize the total complex of
available machines. Alternatively, it may be useful in the above instance to
interrupt printing of any non-urgent job and commit all resources, or a certain
number of resources, to the current urgent job. Preferably, the scheduler assigns
complete sets of documents to multiple printers since collation of a set from
partial sets at remote locations would be undesirable. The user is then informed
where the job has been allocated and when completion is expected.

Detailed Description Text (9):
According to an alternative embodiment, the user is not required to enter time
constrains as an input, but may have an automatically designated print location or
a user selected print location. The scheduler 50 examines the print queue of the
selected printer. If the queue is relatively empty, one or a few small jobs, the
scheduler can allocate the job to the selected printer and inform the user of where
the job was scheduled and when completion is expected. If a large number of jobs,
or a large single job, are in the selected print queue, the scheduler 50 will
prompt the user that the print queue is backed up and will have a completion time

which is not in the near future. The user may then enter through the user interface
a request to utilize a different printer, enter a required completion time and have
the scheduler 50 allocate the job to one or more available printers, or choose the
selected full print queue if printing is desired at the specific location selected
and completion time is not important.

Detailed Description Text (10):
The scheduler 50 may provide printing at a certain predetermined location or
specific printer 10 if so desired (or requested when entering criteria relating to
a print job), or if unavailable, can select alternative printers 10 located near
the predetermined location. If none are available, the scheduler 50 can select a
remote location for printing. The scheduler 50 can allocate the job between a
plurality of printers 10 at different remote locations. The present invention
allows printshop managers to organize and optimize printing schedules fully
utilizing all available printing capabilities.

Detailed Description Text (11):
Alternatively, it may be desirable for the user to send copies of a job to a
plurality of remote locations. For instance, a user may desire a total of 500
copies of a document to be sent to several remote locations. The user can input the
number of copies requested at each location and the time at which each location
should complete the job. The scheduler 50 can determine availability of all remote
locations and determine if the remote locations can complete the job by the desired
completion time. If possible, the scheduler 50 allocates and prints the job at each
location. If one or more locations are incapable of completion of the job, the
scheduler 50 can inform the user of the problem and allow change in the time
schedule or allow the user to select (or automatically select) alternative
locations to print portions of the job which cannot be completed due to a lack of
available resources or unable to complete by the requested completion time.

Detailed Description Text (13):
Another feature of the present invention is provision of a user at any local area
within the network to control printing of a job at a plurality of user determined
locations, the system providing bidirectional communication with the user to
confirm to the user that each location can complete the desired job, the time at
which the job will be completed, or acknowledgement that the system cannot complete
the job within the requested time constraint. The scheduler 50 in accordance with
the present invention can establish communication between a user and the system to
request entering of criteria. As shown in FIG. 3, the scheduler 50 can include
menu-driven operation viewable though suitable display means such as display 60 on
User Interface 40.

Detailed Description Text (14):
An example of this is as follows: Depending on the job type, certain criteria is
requested including selection of media format, size, number of copies, completion
time, etc. Once this information is entered, the print job data can be input into
the system and sent to a common print spooler 60. Upon analysis of available
printers and the entered criteria, the scheduler 50 schedules one or more printers
10 for printing of the job. Upon determination of a printing scheme, the scheduler
50 sends confirmation back to the user that the job is either being printed at one
or more locations, will be printed at a determined location at a later time, or
cannot meet the entered criteria and as such cannot print the job. The user may in
the last case, be requested by the scheduler 50 to enter a later completion time,
change any other criteria which can allow the job to be completed or to cancel the
job. If the job can be printed at one or more non-selected locations, the user may
allow printing at these locations such that the job can proceed to completion. Any
job which has been scheduled will include feedback to the user which signifies that
the job is in the system and will be completed by the required completion time or
an estimated time. The scheduler 50 can predict when the print job will be
completed and send this information to the user through the User Interface 40. This

can be accomplished according to the disclosure of U.S. Pat. No. 5,036,361 to
Fillion et al., incorporated herein by reference.

Detailed Description Text (15):
An example of automatic print job distribution is shown in FIG. 4. A user inputs a
job to a network printer (step 410). Print server 60 and scheduler 50 determine the
job length (step 420) based on the number of copies, the particular machine,
printing parameters such as simplex or duplex, etc. The scheduler 50 then examines
the printer queue (step 430) and determines if the printer can complete the job by
the required time (step 440). If the job can be completed on time the job is
allocated to the printer (step 450). The user is then informed of the job schedule
(step 460). If the printer cannot complete the job by the required time, the amount
of the job that can be completed on time is determined (step 415). This preferably
is done in complete sets so that partial sets are not split up among plural
printers which could cause collation problems during assembly of the job. That
portion of the job that can be completed by the printer is allocated (step 425).
The unallocated portion of the job is then broken off from the allocated portion
(step 435). The scheduler 50 then checks for any available printers (step 445). If
no other printers are available, the scheduler 50 informs the user that the job
cannot be completed on time (step 455). If another printer is available, it is
selected and the unallocated portion is allocated to this available printer (step
465). The process then repeats by reverting to step 420, where the job length of
the remaining job portion is determined.

CLAIMS:

1. An automated scheduling method for a network having a plurality of printers
located at various locations within said network, an input means, a scheduling
means, and a communication link to connect said plurality of printers with each
other and to said input means and said scheduling means, the network being capable
of scheduling a complex of remote and local printers located on the network, the
method comprising the steps of:

inputting from said input means a plurality of criteria relating to a print job
requested by a user to said scheduling means, said criteria including at least the
number of copies of said job requested, locations within said network where said
job is to be printed, and a requested completion time for said job;

electronically analyzing said plurality of printers to determine availability of
one or more of said plurality of said printers at each of said locations;

automatically electronically scheduling printing of said job at said locations;

electronically prompting said user if any of said locations cannot complete said
job; and

electronically prompting said user of an estimate of when completion of said print
job can be expected.

3. The method of claim 1, wherein after said step of electronically prompting said
user if any of said locations cannot complete said job, said scheduling means
electronically prompts for input by the user selecting alternative locations for
printing of said job.

4. The method of claim 1, wherein after said step of prompting said user if any of
said locations cannot complete said job, said scheduling means prompts the user of
automatically selected alternative locations for printing of said job.

5. An automated scheduling method for a network having a plurality of printers
located at various locations within said network, an input means, a scheduling

means, and a communication link to connect said plurality of printers with each other and to said input means and said scheduling means, the method comprising the steps of:

(a) submitting a job to a selected network printer;

(b) determining the length of said job;

(c) electronically examining the selected network printer print queue;

(d) electronically determining if the selected network printer can complete the job by a requested time;

(e) electronically allocating a portion of the job that can be completed by the requested time to the selected network printer for printing;

(f) electronically searching for other available printers;

(g) electronically allocating any unallocated portion of the job to an available printer; and

(h) informing a user of the job schedule.

6. The method of claim 5, wherein step (g) is followed by determining the job length of the portion allocated to the available printer and determining if the available printer can complete the job portion by the required time.

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L4: Entry 1 of 1   File: USPT   Dec 11, 2001

US-PAT-NO: 6330542
DOCUMENT-IDENTIFIER: US 6330542 B1

TITLE: Automated internet quoting and procurement system and process for commercial printing

DATE-ISSUED: December 11, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Sevcik; Jan Joseph	Foster City	CA		
Handler; Katharine Woods	San Francisco	CA		
Johansen; Jon	San Francisco	CA		

ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
Ecorporate Printers, Inc.	Foster City	CA			02

APPL-NO: 09/ 449158   [PALM]
DATE FILED: November 24, 1999

INT-CL: [07] G06 F 17/60

US-CL-ISSUED: 705/8; 705/400
US-CL-CURRENT: 705/8; 705/400

FIELD-OF-SEARCH: 700/100, 700/101, 700/102, 705/8, 705/400

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

Search Selected   Search ALL   Clear

	PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
☐	4495582	January 1985	Dessert et al.	364/469
☐	4839829	June 1989	Freedman	345/329
☐	5132915	July 1992	Goodman	364/479
☐	5241464	August 1993	Greulich et al.	364/401
☐	5249120	September 1993	Foley	705/1
	5255207	October 1993	Cornwell	703/1

☐

☐	5280425	January 1994	Hogge	712/300
☐	5287194	February 1994	Lobiondo	358/296
☐	5383129	January 1995	Farrell	705/400
☐	5550746	August 1996	Jacobs	364/479.01
☐	5726898	March 1998	Jacobs	364/479.01
☐	5768142	June 1998	Jacobs	364/479.01
☐	5826244	October 1998	Huberman	705/37
☐	5897260	April 1999	Zingher	101/494
☐	5930810	July 1999	Farros et al.	707/506
☐	5960164	September 1999	Dorfman et al.	395/110
☐	6012066	January 2000	Discount et al.	707/103
☐	6012890	January 2000	Garrido	412/19
☐	6018338	January 2000	Greulich et al.	345/333
☐	6064838	May 2000	Maruta et al.	399/79

FOREIGN PATENT DOCUMENTS

FOREIGN-PAT-NO	PUBN-DATE	COUNTRY	US-CL
09-305665-A	November 1997	JP	
WO-00/20983-A1	April 2000	WO	

OTHER PUBLICATIONS

Antoniak: "Software Eliminates Guesswork When Estimating Cost", Printing, Jul. 31, 2000, v145, n5, p. 11.

ART-UNIT: 211

PRIMARY-EXAMINER: Cosimano; Edward R.

ATTY-AGENT-FIRM: Pennie & Edmonds LLP

ABSTRACT:

Automated internet or other networked data processing system commercial printing software consists primarily of two components:

A Print Buyer Component (22) and

A Print Provider Component (24). The print buyer component (22) and the print provider component (24) are coupled together by an automated quoting and procurement system (26). The print buyer component (22) accesses the automated quoting and procurement system (26) through a series of modules (28) representing print product categories. The print provider component (24) accesses the automated quoting and procurement system through a series of modules (30) representing vendor functions to be furnished to a print buyer.

23 Claims, 19 Drawing figures

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L4: Entry 1 of 1   File: USPT   Dec 11, 2001

DOCUMENT-IDENTIFIER: US 6330542 B1
TITLE: Automated internet quoting and procurement system and process for commercial
printing

Brief Summary Text (4):
The usual method in the industry for printing buyers is to contact several inside
or outside sales representatives of printing companies to obtain quotes for
projects. However, this is very time consuming and does not necessarily result in
the best pricing for the buyer. Furthermore, this is very time consuming for the
printing provider because quotes have to be prepared for every project. The other
solution is for the buyer to use some of the other Internet sites that have been
established for obtaining printing quotes.

Brief Summary Text (5):
One Internet site that provides quoting functions is PrintBuyer.com. However, this
application does not provide the same solution as the invention. More specifically,
this Internet application does not provide an immediate quote. The buyer first must
provide the specifications by completing several lengthy forms and then this
information is sent via email to the printing providers that subscribe to the
service. The printing providers then prepare the quote manually and send the quote
to the print buyer via email or fax. These Internet sites do not allow the buyer to
simply choose a graphic of an item for which to receive a quote. Thus, the benefits
to the buyer are questionable. Furthermore, this Internet site does not make any
attempt to match the requested product to the best printing provider for that
product. The result is that the printing providers submitting quotes for that
project may not be the most competitive companies for that project.

Brief Summary Text (11):
An auction based approach for providing printing and other document services is
described in U.S. Pat. No. 5,826,244, issued Oct. 20, 1998 to Huberman. While the
system disclosed there utilizes a computer network to speed communication between a
customer and a plurality of potential suppliers, it still relies on a conventional
bidding process by the potential suppliers in response to a description of a
printing job provided by the customer.

Brief Summary Text (15):
It is another objective of the invention to provide the buyer with quotations that
have been generated from multiple print providers based on criteria which the print
buyer can easily change to determine the impact of those changes on the cost of the
project.

Brief Summary Text (16):
It is a further objective of the invention to introduce multiple turnaround time
options to print buyers. Shorter turnaround times generally equate to higher
prices.

Brief Summary Text (18):
It is another objective of the invention to provide an auto intelligence type

function that will give the buyer all of the available options to produce a particular project at a given price which might include changing the paper selections, slightly altering the size of the project, or changing or omitting certain finishes to allow the buyer to make the most informed buying decision.

Brief Summary Text (19):
It is yet another objective of the invention to introduce cost savings into the printing marketplace by aggregating the demand for like products and sending those projects to printing providers that are the most economically efficient producers of those products based on equipment configurations and other economic considerations. Furthermore, it is the intent of the invention to generate these cost savings by increasing efficiency, not by lower profit margins for printing providers. Aggregating the volume of printed products results in greater operating efficiencies for printing providers, thereby allowing the printing providers to lower pricing without making any sacrifices in profit margins.

Brief Summary Text (21):
These and related objectives are achieved through the use of the automated Internet quoting and procurement system herein disclosed. The automated Internet quoting and procurement system described herein features a series of graphical interfaces which represent various printed products that are linked to a database of prices and other variable options from various print providers. The products are arranged in a catalog by common product type. The printing buyer is guided to the section containing the products for which the buyer needs a quote. The buyer selects the product for which it desires a quote and then is prompted for the additional variable specifications required to compute the quote. This preferably includes variables such as quantity, paper, ink, turnaround time, shipping zip code, and a question which prompts the buyer to determine if a press check is required and if so what is the maximum distance the buyer is willing to travel. Upon selecting the desired variables, the system uses the appropriate algorithm to generate the quote, which also includes the freight costs to the destination zip code.

Brief Summary Text (22):
If the printing buyer does not see a graphic that represents the product for which they are seeking a quote, the buyer is directed to the custom product graphic for that product category. The custom product category allows the printing buyer many more variable options than the standard product graphics and allows the printing buyer to create virtually any variation of the product in that category and still receive an immediate quote. To assist the printing buyer with answering the series of questions required to compute a custom quote, the system features graphical interfaces with each question which help the buyer with the responses to each question. The system has a complex database of information for each of these custom product categories which allow it to search for the criteria entered by the printing buyer. The system computes the optimal equipment on which to print the project given the quality, quantity, and size requested by the buyer, then searches the database for costs for all of the required functions provided by print providers, and then computes the quote using one of many various algorithms depending on the other specifications that were entered by the printing buyer. This novel approach allows the system to automatically generate quotes for custom products, but furthermore, it ensures the project is produced on the most efficient equipment for that particular product.

Brief Summary Text (23):
In another aspect of the invention, printing providers have access to an interface, which allows the provider to input price information, turnaround time, and paper information for each of the products that the provider produces. The print provider also has access to another interface, which provides the status of each pending project.

Brief Summary Text (24):

An additional aspect of the invention features a personal home page for each
registered print buyer which features job status information for all projects in
process. This information allows the print buyer who is handling multiple projects
to check the status of pending projects whenever they desire to do so. The job
status information is updated by the print provider's entries.

Drawing Description Text (13):
FIG. 16 is a Print Provider Home Page: Update Job Status Interface screen for all
ordered products using the system and process of FIGS. 1-1A.

Drawing Description Text (14):
FIG. 17 is a Vendor Pricing Grid for Custom Quote Products

Detailed Description Text (7):
The print buyer component 22, as shown in FIG. 1A, consists of series of interfaces
32, 34 and 36 to access the quoting, job status, and account management functions
of the system and process through a system 30 home page 38. The quoting function 32
provides the printing buyer with an immediate quote for printing products, while
the job status and account management functions 34 and 36 allow the print buyer to
manage the procurement process more easily.

Detailed Description Text (16):
Furthermore, the print buyer may not really know if they are getting the best price
because the print providers that have been contacted for the project may not be the
most competitive on those items for those quantity ranges.

Detailed Description Text (18):
The print provider must pay the sales representative or customer service
representative to obtain the information from the print buyer and communicate back
and forth with the buyer.

Detailed Description Text (25):
At the product category level of the catalog, each product is displayed with a
graphic of that item. The graphics that are displayed depend on the category the
buyer is in and are unique to each category. In order to obtain a quote, the print
buyer clicks onto the graphic representing the product or selects a job type as
shown at 42 in FIG. 3. When the print buyer does this, the buyer is prompted for
several variable options as pull down menus for that particular product, as shown
at 44 in FIGS. 4 and 5 and at 46 in FIG. 6. Different products have different
variable options but typically include the following types of variables:

Detailed Description Text (31):
Delivery Zip Code. The delivery zip code is used to select the nearest available
print provider given the criteria entered by the print buyer and to compute the
freight charges.

Detailed Description Text (41):
In addition, all products have an option for the user to print the specifications
of a design, aiding in the design of the piece and eliminating the need for
clarification of the specifications between the print provider, print buyer, and
designer. These specifications include the size, areas for bleeds, and bindery
specifications including position of any folds or scores. For all graphics that
represent products that may be mailed via the U.S. Postal Service, there are
additional design templates that can be printed which show special postal
regulations that must be followed in order for the project to comply with postal
regulations. Furthermore, additional information about postal regulations and rates
is available as a pull down menu, which tells the print buyer the categories and
the postage range for that item.

Detailed Description Text (42):

When the print buyer has selected the desired variables, the system uses the
appropriate algorithm as outlined below to generate an immediate quote, as shown at
48 in FIG. 5. The print buyer can change any of these variables after receiving the
quote and request another quote based on the new options, as indicated at 50 in
FIGS. 4,5 and 7. This allows the printing buyer to immediately see the impact of
any specification changes on the price of the project.

Detailed Description Text (44):
Each print provider completes a price matrix on their home page 60 (FIG. 1A) for
each item they want to supply for quantity ranges they are most competitive on.
This price matrix will include the quantity and all variable information being
offered on that item in addition to different production times.

Detailed Description Text (48):
Then the system searches for the lowest price for that quantity range and variable
options among the vendors that have been identified.

Detailed Description Text (49):
Next it computes the weight of the order based on the quantity and paper weight and
computes the freight at 68 by choosing the most competitive shipping method for
each of the printing companies that meet the criteria in the search. Then the
system displays the vendor with the most competitive printing and freight cost and
assigns a reference number to the quote at 70.

Detailed Description Text (53):
In this algorithm, the system searches for the best turnaround time at 90 given the
options selected at 91 by the print buyer for paper 93, ink 95, quantity 96,
delivery zip code 97, press check 98 and vendor preference 99. The system generates
a quote at 92 based on the prices of available print providers at 94 offering the
best turnaround 90.

Detailed Description Text (54):
Best Price Available with any Turnaround Time (FIG. 10)

Detailed Description Text (55):
It is possible to search for the best value without specifying a turnaround time.
In this algorithm, the system searches for the best price at 100 using the options
selected at 101 for paper 102, ink 103, quantity 104, delivery zip code 105, press
check 106 and vendor preference 107, but independent of turnaround time 108, to
locate the print provider that offers the best price available.

Detailed Description Text (56):
Press Check Not Required-Best Price Based on Options Entered (FIG. 11)

Detailed Description Text (57):
In this algorithm, the system uses the options selected at 110 for paper 111, ink
112, quantity 113, turnaround 114, delivery zip code 115, and vendor preference 116
to find the print provider at 117 that offers the best price given the criteria
presented.

Detailed Description Text (58):
Press Check Required-Best Price Based on Options Entered (FIG. 12)

Detailed Description Text (59):
In this algorithm, the print buyer is prompted at 120 with an additional drop-down
menu of distances they are willing to travel in order to perform the press check.
The system then uses the print buyer's selected (at 121) travel distance, as well
as the other options selected for paper 122, ink 123, quantity 124, turnaround 125,
delivery zip code 126, and vendor preference 127 as variables to find the print
provider at 128 that offers the best price given the criteria presented. Note that

the print provider list is more limited in this algorithm.

Detailed Description Text (64):
The system effectively aggregates volume. By aggregating the demand for these products and allowing the print provider's plants to run at higher efficiencies, the cost of the products will be lower. For example, if a printing provider has a 26" five color press, the provider may be most profitable producing full color 6.times.9 postcards with an aqueous coating from quantities of 50,000-100,000 for example. Any orders smaller or larger than these quantities do not optimize this particular press. Smaller or larger orders will have to have a lower billable hourly rate in order to be competitive resulting in reduced profit margins for these types of project. In theory, the printing provider would only sell jobs that meet these exact parameters, but the reality is that is not possible for any printing provider. With this system and process, the printing provider receives the optimal mix of products, thus optimizing production capabilities, which results in lower costs without any sacrifice in margins.

Detailed Description Text (123):
The system then computes the cost of the press time at 159 (FIG. 13) from the additional information supplied during the custom product quote process by the Print Buyer for the press check option, delivery zip code, and turnaround time. Using these parameters, the system finds the best printing provider for the job at 160 from those available by using the hourly rate information supplied by the printing provider to compute the press time costs. The system adjusts the press speeds if necessary to account for paper differences. The press costs are computed based on the formula for the number of colors, CN/N, for each side of the project.

Detailed Description Text (127):
Then the system computes various bindery charges as follows. If there are no bindery requirements, the system displays the price and specifications.

Detailed Description Text (129):
Finally the system adds all of the computed press times, paper costs, bindery costs, shipping costs and intermediary fees together and displays the price and specifications at 161.

Detailed Description Text (131):
After the print buyer receives the price and specifications, the print buyer may either proceed to order the product or if the price is more than the buyer's budget, the buyer has the option of entering the maximum price the buyer would like to pay for the project and allowing the system to generate a new quote by having the system change certain specifications, as shown in FIGS. 4, 5, and 7 and represented by the "change options" box 49 in FIGS. 1A, and 9-12. However, it should be noted that this component by no means constitutes an auction system of any type and there is no guarantee the system can generate any savings for that particular type of project. The system merely gives the buyer options the buyer may not be aware of. These include options such as changing the paper weight, quality or finish, slightly changing the dimensions of the project, omitting or changing a coating, or increasing the turnaround time, as indicated at 50 in FIGS. 4, 5, and 7. All of these options can have a major impact on the price of the project. For example, a print buyer may have entered dimensions for a brochure which allow the brochure to only be printed three up on the press that is best suited economically and in terms of production for that particular project. However, if the brochure was even a small percentage shorter in length or width, the brochure might be able to be printed four up resulting in a much lower cost. The weight, quality, or finish of paper can have the same type of price impact. If the system cannot produce a quote at or below the budgeted amount, the system will still output the other options that result in a lower price. However, the intent of this component is to allow the print buyer to have as much information as possible in order to make the most informed decision with a minimal effort for the buyer.

Detailed Description Text (136):
Print buyer registration 162 (FIG. 1A)--the function through which print buyers
establish an account. Registration consists of a series of interactive text fields
where they input (type in) account, billing and shipping information. Once the
account is established, print buyers will be able to log in.

Detailed Description Text (138):
Job status--the function through which print buyers may check on the status of
pending orders. Once print buyers have established an account and have placed
orders using the system, they will be able to login at any time to check the status
of their job. Job status includes basic information such as: "in production" or "on
time", as well as critical information such as "missing font" or "approval
required." This function is only available to print buyers in login mode.

Detailed Description Text (142):
The print provider Component consists of a series of interfaces which allow the
provider access to the system in order to enter information on job status and job
history, production availability profile and pricing structure, and current contact
information. Once published to the database, the data is instantly available to any
print buyer accessing the application, from their personalized home page.

Detailed Description Text (144):
View/update current job status. The print provider may search for a job by ID,
keyword or other specified variable, or view all jobs in the queue and/or sort all
jobs by date, print buyer name, or other specified variable

Detailed Description Text (145):
View job history/archived job history. The print provider may search for a job by
ID keyword or other specified variable. They select either "current" or "archived"
depending on whether the status of the job is open or closed

Detailed Description Text (146):
View/update production availability profile and pricing structure

Detailed Description Text (150):
Each job is given an ID number automatically by the system once a print buyer
requests a quote. The ID number, from that point on, is used to track job status.
For any job, there will always be a status including on hold, in production, and
completed. The print provider is required to update the status of a job each time
that status changes. Any change in job status entered into the system will, upon
approval, be viewable by the Print Buyer. For example, a Print Provider may require
additional information about a job in order to begin. The Print Buyer is notified
of this (on their personal home page and via inter-system electronic mail) as soon
as the Print Provider provides the information and it is approved and submitted to
the database.

Detailed Description Text (151):
Job status is updated by navigating from the Print Provider home page to the Update
job status interface. The Update job status interface consists of a line-by-line
listing of that Print Provider's active jobs with the following
information/options. Note that a "link" involves navigating to a new page:

Detailed Description Text (158):
A Print Provider updates job status (FIG. 16) by navigating to the "Update job
status" interface. Here they select a new status from a drop-down menu of options
and click a button to submit the changes into the workflow. These options include:

Detailed Description Text (167):
Once a job is completed, it moves out of the current job queue into an archive. The

history of that <u>job</u> will always be accessible to the <u>Print</u> Buyer with access to that account.

<u>Detailed Description Text</u> (168):
Production Availability Profile and <u>Pricing</u> Structure

<u>Detailed Description Text</u> (169):
Each <u>Print</u> Provider is required to maintain the listing of <u>jobs</u> being accepted. This information will include the type of jobs currently being accepted (i.e. postcards, marketing collateral, envelopes) as well as quantity, turnaround time and <u>pricing</u> for those jobs and available presses as well as run lengths, turnaround time, and hourly rates for those presses for the custom quotes feature. A <u>Print</u> Provider may add, delete or edit any <u>job</u> or press or any quantity, turnaround time or <u>price</u> associated with that <u>job</u> or press, in their profile at any time. The information entered is sent to the workflow for review by a content administrator, and once approved, is submitted to the system database. When a <u>Print</u> Provider makes changes to their production availability profile, the <u>job</u> or press in question (for that <u>Print</u> Provider only) is temporarily on hold until the administrator verifies the changes. During this time, quotes and orders with similar <u>job</u> specifications will be directed to other <u>Print</u> Providers in the network. Changes to the profile do not affect jobs currently in production.

<u>Detailed Description Text</u> (174):
<u>Price</u>

<u>Detailed Description Text</u> (187):
The job category with options and presses for custom product quotes both have the same associated two functions: Delete or Add new. If the Print Provider selects "delete," the user will be presented with a confirm deletion interface. At that point the Print Provider may either confirm deletion or cancel the deletion request. Cancellation of the request returns the user to the previous interface. If the <u>Print</u> Provider selects "add," they enter a new interface, the "Add new <u>job</u> category with options" or the "Add new press with options" interface.

<u>Detailed Description Text</u> (188):
In the "Add new <u>job</u> category with options" interface, the <u>Print</u> Provider browses a master listing of <u>job</u> categories from a drop-down menu and selects the <u>job</u> to be added or enters it manually and chooses quantity ranges, turnaround times and <u>prices</u>. Because a <u>Print</u> Provider may offer a single <u>Job</u> category with multiple quantity ranges or turnaround times, there may be many line items with the same <u>Job</u> category.

<u>Detailed Description Text</u> (190):
The <u>Print</u> Provider can edit options such as quantity range and turnaround time for <u>job</u> categories or impressions per hour and hourly press rates for presses from the main profile interface using the following process:

<u>US Reference Patent Number</u> (13):
5826244

CLAIMS:

1. A networked on line <u>printing job</u> procurement system, which comprises a networked data processing system including:

(A) a <u>print</u> buyer software component module for defining <u>print</u> buyer <u>job</u> specifications;

(B) a <u>print</u> provider software component module for specifying <u>print</u> provider <u>job</u> information; and

(C) an automated printing job quoting software component linking said print buyer software component module and said print provider software component module to each other, said automated printing job quoting software component generating a first automated printing job quote based on said print buyer job specifications and said print provider job information, and thereafter suggesting a change to said print buyer job specifications to produce a second automated printing job quote lower than or equal to a maximum price set by a print buyer.

2. The networked on line printing job procurement system of claim 1 in which said automated printing job quoting software component additionally included program code for implementing printing procurement with said networked on line printing job procurement system.

3. The networked on line printing job procurement system of claim 1 in which the suggested change includes at least one of paper weight, paper quality, paper finish, a dimension change, omitting a paper coating, changing a paper coating or changing turnaround time.

4. The networked on line printing job procurement system of claim 1 in which said automated printing job quoting software component includes a database of print job information used by said automated printing job quoting software to provide automated print job quotes to said print buyer software component module.

5. The networked on line printing job procurement system of claim 4 in which said automated printing job quoting software includes program code for providing a plurality of menu screens organized by printing job type on a display of said networked data processing system, for receiving user responses to the plurality of menu screens, and for using the user responses to the plurality of menu screens to provide an automated print job quote on said display.

6. The networked on line printing job procurement system of claim 5 in which said automated printing job quoting software component additionally includes program code for implementing printing procurement with said networked on line printing job procurement system and said plurality of menu screens includes a user selection for beginning procurement of a printing job in response to the automated print job quote.

7. The networked on line printing job procurement system of claim 5 in which said plurality of menu screens includes at least one menu screen for specifying a custom print job.

8. An on line printing job procurement process, which comprises:

(A) inputting print provider job information into a networked data processing system to create a database of the print job information;

(B) inputting a print buyer job specification into the networked data processing system;

(C) generating a first automated printing job quote utilizing the database of the print provider job information in response to the print buyer job specification;

(D) outputting the first automated printing job quote to the print buyer; and

(E) suggesting a change to said print buyer job specifications to produce a second automated printing job quote lower than or equal to a maximum price set by a print buyer.

9. The networked on line printing job procurement process of claim 8 in which the

suggested change includes at least one of paper weight, paper quality, paper finish, a dimension change, omitting a paper coating, changing a paper coating or changing turnaround time.

10. The on line printing job procurement process of claim 8 in which the print buyer job specification is inputted into the networked data processing system using a plurality of menu screens organized by printing job.

11. The on line printing job procurement process of claim 10 in which the plurality of menu screens includes at least one menu screen for specifying a custom print job.

12. The on line printing job procurement process of claim 8 additionally comprising the step of:

(E) inputting a user input to the networked data processing system for beginning procurement of a printing job in response to the automated print job quote.

13. The on line printing job procurement process of claim 12 additionally comprising the step of:

(F) administering procurement of the printing job through the networked data processing system.

14. The on line printing job procurement process of claim 8 in which the print buyer job specification is inputted into the networked data processing system using a plurality of menu screens organized by printing job, the process additionally comprising the step of:

(E) inputting a user input to the networked data processing system through one of the plurality of menu screens for beginning procurement of a printing job in response to the automated print job quote.

15. The on line printing job procurement process of claim 14 additionally comprising the step of:

(F) administering procurement of the printing job through the networked data processing system.

16. An article of manufacture comprising computer program code stored in a computer readable storage medium, which computer program code will, when executed in a networked computer system, implement an on line printing job procurement process in the networked data processing system, said computer program code comprising:

(A) a first code segment for inputting print provider job information into a networked data processing system to create a database of the print job information;

(B) a second code segment for inputting a print buyer job specification into the networked data processing system;

(C) a third code segment for generating a first automated printing job quote utilizing the database of the print provider job information in response to the print buyer job specification;

(D) a fourth code segment for outputting the first automated printing job quote to the print buyer; and

(E) a fifth code segment for suggesting a change to said print buyer job specifications to produce a second automated printing job quote lower than or equal

to a maximum <u>price</u> set by a <u>print</u> buyer.

18. The article of manufacture of claim 16 in which the first code segment is configured to input the <u>print</u> buyer <u>job</u> specification into the networked data processing system using a plurality of menu screens organized by<u>printing job</u>.

19. The article of manufacture of claim 18 in which the plurality of menu screens includes at least one menu screen for specifying a custom <u>print job</u>.

20. The article of manufacture of claim 16 additionally comprising:

(E) a fifth code segment for inputting a user input to the networked data processing system for beginning procurement of a <u>printing job</u> in response to the automated <u>print job</u> quote.

21. The article of manufacture of claim 20 additionally comprising:

(F) a sixth code segment for administering procurement of the <u>printing job</u> through the networked data processing system.

22. The article of manufacture of claim 16 in which the second code segment is configured to input the <u>print</u> buyer <u>job</u> specification into the networked data processing system using a plurality of menu screens organized by<u>printing job,</u> computer program additionally comprising:

(E) a fifth code segment for inputting a user input to the networked data processing system through one of the plurality of menu screens for beginning procurement of a <u>printing job</u> in response to the automated <u>print job</u> quote.

23. The article of manufacture of claim 22 additionally comprising:

(F) a sixth code segment for administering procurement of the <u>printing job</u> through the networked data processing system.